UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Hydraulic Modelling

School of Geography, Faculty of Environment

Salary: Grade 7 (£32,548 – £38,833 p.a.)

Please note that due to funding limitations an appointment is unlikely to be made above £32,548

Reference: ENVGE1057

Closing date: 3 September 2017

Fixed term for one year (external funding), available from 1 October 2017

Research Fellow in Hydraulic Modelling
School of Geography, Faculty of Environment

Are you an ambitious and independent researcher looking for your next challenge? Do you have a background in hydrology, hydraulics and geomorphology? Do you want to further your career in one of the UK's leading research intensive Universities?

Based in the School of Geography, you will contribute to the Natural Environment Research Council (NERC) funded FLOODMAL project which will investigate the use of hydraulic flood modelling to predict malarial mosquito habitat distribution and dynamics in the Upper Zambezi floodplain in Western Zambia. Utilising established techniques across the fields of earth observation, flood modelling and mosquito vector spatial ecology, we aim to develop a process understanding of the relationship between flooding in major river systems and malaria transmission at the catchment scale in sub-Saharan Africa.

Joining the River Basin Processes and Management research group and working closely with Dr Mark Smith and colleagues, you will also be involved with colleagues at Aberystwyth University and the University of Lincoln, in addition to our project partners in Zambia. Collaboratively, we will generate high resolution topographic models of the Barotse floodplain from both satellite and drone imagery. These data, coupled with sonar bathymetry and daily discharge data will then be used to drive a 2D hydrodynamic model (LISFLOOD-FP). We will create estimates of flood extent dynamics and how different climate change scenarios impact water body locations. Mapped and modelled flood extents will then drive an agent-based model to simulate landscape mosquito distributions. This model will identify spatially and temporally dynamic hotspots of vector larvae across the floodplain. Specifically, you will lead the hydraulic modelling component of the project and be responsible for developing flood extent maps for the Barotse floodplain from the supplied topographic data. Whilst based in Leeds, you will also have the opportunity to accompany the research team to the field site and assist with bathymetric data collection.

With a PhD (or close to completion) in Geography, Civil Engineering or a closely allied discipline, you will also have a strong background in hydrology, hydraulics and fluvial geomorphology and experience of hydraulic and/or hydrological modelling. Experience of working in remote or challenging environments is desirable.



What does the role entail?

As a Research Fellow your main duties will include:

- Working with and in support of Dr Mark Smith's research to ensure the FLOODMAL project is successfully completed;
- Liaising with project collaborators over field logistics and the acquisition of field data;
- Participating in field campaigns (approximately two weeks overseas) to collect bathymetric and topographic data as required;
- Taking responsibility for creating a hydraulic model of the Barotse floodplain using the acquired topographic, bathymetric and hydrometric data;
- Communicating the hydraulic model outputs of present day conditions and future climate scenarios to the entomological field team and project collaborators;
- Participate in and contribute to regular project meetings;
- Contribute to the work of the research team as a whole; through dialogue with colleagues, generation of ideas, advising on study design, problem solving etc.;
- Preparing papers for publication in leading international journals and independently writing reports;
- Contributing to and encouraging joint discussions with the wider research group and external partners;
- Maintaining your own continuing professional development;
- Contributing to the work of the research team as a whole through dialogue with colleagues, generation of ideas, advising on study design and problem solving and where appropriate the research culture of the School;
- Contributing to the training of both undergraduate and postgraduate students, where appropriate, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or close to completion) in Geography, Civil Engineering or a closely allied discipline;
- A strong background in hydrology, hydraulics and fluvial geomorphology;
- Experience of hydraulic and/or hydrological modelling;
- Demonstrated experience of conducting research and evidence of innovation in research;
- A developing track record of peer-reviewed publications in international journals;
- The ability to work accurately;
- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure;
- Excellent written and verbal communication skills including presentation skills and the ability to communicate effectively with a wide range of stakeholders;
- Proven ability to manage competing demands effectively, responsibly and without close support;
- A proven ability to work well both individually and in a multidisciplinary team;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience of working in remote or challenging environments;
- Experience of working with or deriving DEM products from stereo imagery;
- Experience of working with deriving discharge predictions from Global Circulation Model projections.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Dr Mark Smith, Associate Professor in Water Research
Tel: +44 (0)113 343 1974
Email: M.W.Smith@leeds.ac.uk

Additional information

Find out more about the Faculty of Environment and our School of Geography.

Find out more about our Research.

Find out more about Equality and Inclusion and Athena Swan in the Faculty and the University.

Working at Leeds
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our Working at Leeds information page.

Candidates with disabilities
Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.